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FM 6-36

DEPARTMENT OF THE ARMY FIELD MANUAL

FIELD ARTILLERY MISSILE REDSTONE FIRING PROCEDURES

HEADQUARTERS, DEPARTMENT OF THE ARMY
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CHAPTER 1
INTRODUCTION

1. Purpose

a. This manual is published for the use of personnel responsible for firing the Ballistic Guided Missile XM 8, Redstone.

b. The Redstone missile firing procedures are a collection of instructions for preparing and firing the Redstone missile using field artillery equipment.

c. Errors or omissions in this manual will be reported direct to the Commandant, U.S. Army Artillery and Missile School, ATTN: AKPSITL, Fort Sill, Oklahoma.

2. Scope

a. The information contained herein is well defined and strict compliance with the instructions is required.

b. Detailed instructions for operation, maintenance, and inspection of individual items of equipment are contained in separate manuals and are not included herein. Compliance with TM 9–1400–350–12, "Maintenance Operational Readiness Procedures," will insure proper operational condition of the overall system.

3. Maintenance Allocation

a. Limitations imposed on performance of maintenance are those of repair parts, equipment and tools authorized, time element, and skills of available personnel.

b. In general, prescribed maintenance responsibilities of the firing battery for Redstone peculiar materiel are reflected in allocations of test equipment, repair parts, and tools as indicated in each technical manual.

c. Where the repair, modification, or adjustment is beyond the capability of the firing battery, the direct support ordnance company will be contacted for assistance.

4. Forms, Records, and Reports

The value of accurate reports cannot be overemphasized. All personnel operating and maintaining this equipment, as well as the officers of each unit, must recognize their responsibilities for the compilation, maintenance, and use of prescribed forms, records, and reports, including the following:

a. Accident Reports. All accidents involving injury to personnel or damage to materiel must be reported in accordance with AR 385–40.

b. Record Book. The record book provides valuable initial data and constitutes a running historical record of the major item to which it pertains. The original entries are made when the manufacturer releases the major item. Thereafter, the organization in physical possession of the major item is responsible for keeping the record book up to date.

(1) Record books are not interchangeable between items. Each book applies to a specific major item as designated by serial number. Detailed instructions for use and maintenance of the records are contained within each record book.

(2) The following record books are maintained by the firing battery when the major item is in their possession:

(*a*) Warhead Section XM30 Ordnance part number 10379692.

(*b*) Body Section, Guided Missile, Aft Unit XM–17, Ordnance part number 10379606.

(*c*) Body Section, Guided Missile, Thrust Unit XM–24, Ordnance part number 10379607.

(*d*) Stabilized Platform, ST–80, Ordnance part number 10379608.

(*e*) Truck, Van, Guided Missile Test Station, AN/MSM–30, Ordnance part number 10379609.

(*f*) Computer, Missile Programming Data, Truck Mounted AN/MTQ–1, Ordnance part number 10350326.

(*g*) Power Distribution Station, Guided Missile System, trailer mounted, AN/MSQ–27, Ordnance part number 10379611.

5. Destruction of Materiel

If destruction of materiel to prevent enemy use is resorted to, follow the instructions outlined in FM 6–35. Due consideration should be given to the observance of appropriate safety precautions.

6. Abbreviations

THE FOLLOWING ABBREVIATIONS ARE USED THROUGHOUT THE PROCEDURES FOR PANELS AND EQUIPMENT:

Propulsion Control Panel	PP
Test Control Panel	TP
Electric Power Panel	EP
Stabilizer Control Panel	SC
Steering Control Panel	SP
Prelaunch C&M Panel	CM
Range Control Panel	RP
Range Calibrator Panel	RC
Velocity Preset Timer Panel	VT
Displacement Preset Timer Panel	DT
Lateral Control Panel	LP
Lateral Calibrator Panel	LC
Program Device Tape Reader Panel	PR
Program Device Control Panel	PD
Communications Panel	CC
Inverter Control Panel	IC
Precision Generator Panel	PG
Remote Firing Panel	RF
Flight Test Simulator Box	FB
Servo Interrupter Box	SB
Power Distribution Station	PDS
Sequence Recorder	SR
Ground Relay Box	RB
Valve Box	VB
Heater Control Box	HB
Liquid Nitrogen Control Box	LN_2C
Test Station	TS

CHAPTER 2
CABLE LAYOUT CHARTS

Cable layout charts provide information and guidance for cabling in the horizontal and vertical positions

CABLE IDENTIFICATION LIST

Cable No.	Plug Ident.	Connects at	Plug Ident.	Connects at	Stored on
W3555	P3206	Relay box assy 50 feet	P1026	Test Station	Acces Trk Cont 6
W3556	P3204	Relay box assy 50 feet	P1021	Test Station	Acces Trk Cont 1
W51433*	P3210	Relay box assy 10 feet	P3401	Valve box	Collapsible Van
W3897*	P50602B	Cable W3559 50 feet	P4201D	Missile Gen Net	Collapsible Van
W51432*	P3219	Relay box assy 10 feet (Vertical only)	P4815 P4816	Missile main-stage link Missile igniter squib and link	Collapsible Van Collapsible Van
W51411	P50605	Power Dist Station 100 ft	P51501	Heater cont box	
W3551	P1023	Test Station 100 feet	P4103D	Missile Gen Net	Acces Trk Cont 5
W51412	P50617	Power Dist Station 100 ft	P51502	Heater cont box	
W51424	P51503	Heater cont box 75 feet	P2	P1–W51423	
W51423*	P1	W51424–P2 75 feet	P2	P1–W3598	Collapsible Van
W51440	P50661A	W51439	P51552	LN_2 control box	

*Expendable Cable.

Cable No.	Plug Ident.	Connects at	Plug Ident.	Connects at	Stored on
W51439	J50661A	Cable W51440 100 feet	P50661	Power Dist Station	
W3595	P35304	Battery servicing shop 10 feet		Batteries	Battery servicing shop
W3565	P1	Thrust Cont 20 feet	P4014	Missile	Acces Trk Cont 3
W3564	P2	Thrust Cont 20 feet	P5092	Missile	Acces Trk Cont 3
W3574	P3732	Servo Int box 6 feet	P6403	Missile	Test Station
W3579	P60 amp	AC Dist box 35 feet	P–LOX	LOX trailer	LOX trailer
W3580	P60 amp	AC Dist box 35 feet	P–LOX	LOX trailer	LOX trailer
W51437	P1024A	Cable W3805	P4841 P4972 P4208A P4893	Precool tanks and detonators	Acces Trk Cont 6
W3827	PH202	Hyd peroxide servicer 35 feet	P30 amp	AC dist box	Hydrogen Peroxide Servicer
W3802	P6701C	Missile Prog device 100 feet	P1025	Test Station	Acces Trk Cont 6
W3805	P1024A	Cable W51437 100 feet	P1024	Test Station	Acces Trk Cont 7

Cable No.	Plug ident.	Connects at	Plug ident.	Connects at	Stored on
W3817*	P3209	Relay box assy 200 feet	P3209A	Cable W3818	Collapsible Van
W3818	P3209A	Cable W3817 200 feet	P3209B	Cable W3819	Acces Trk Reel 5
W3819	P3209B	Cable W3818 200 feet	P3301	Remote firing panel	Acces Trk Reel 6
W3823	P35402	Generator trailer 75 feet	P35402A	Cable W3824	Acces Trk Reel 7
W3824	J35402A	Cable W3823 75 feet	P100 amp	AC dist box	Acces Trk Reel 8
W3833	P3701	Flight test sim box 25 feet	J4117	Missile Inst compartment	Acces Trk Cont 1
W3834	P60 amp	AC dist box 50 feet	P1004	Test Station	Acces Trk Cont 7
W3559	P50602A	Cable W3560 50 feet	P50602B	Cable W3897	Acces Trk Cont 4
W3560	P50602	Power Dist Station 50 ft	P50602A	Cable W3559	Acces Trk Cont 8
W3567	P3702	Flight test sim box 12 ft	P3733	Servo Int box	Acces Trk Cont 2
W3598*	P1	P2–W51423 75 feet	P4974	Heater-cooler	Collapsible Van
W51436*	P4652	Missile Gen Net 60 feet	P51504	Heater control box	Collapsible Van
W51431	P–1	ALC trailer heater 35 feet	P100 amp	60 KW gen	Generator
W51430	P–2	ALC trailer heater 35 feet	P100 amp	60 KW gen	Generator
W3825	P–ALC	ALC trailer 35 feet	P60 amp	AC dist box	ALC Trailer
W3558*	P3207	Relay box assy 150 feet	P50601	Power Dist Station	Collapsible Van
W3896	P50604	Power Dist station 50 feet	P3651	Air servicer	Acces Trk Cont 1
W3554	P3205	Relay box assy 50 feet	P1022	Test station	Acces Trk Cont 2
W3591	P50603	Power Dist Station 25 ft	P35403	AC Gen trailer	AC Gen trailer
W51434*	P3201	Relay box 6 feet	P4101D	Missile Gen Network	Collapsible Van
W51435*	P3202	Relay box 6 feet	P4102D	Missile Gen Network	Collapsible Van
W3597	P51551	LN_2 cooling Cont 100 feet	P4976	Heater Cooler	
W4898	P4975	Heater cooler control box	P4631A	W51438	
W51428	P4631A	Missile skin for horizontal only 10 feet	P4631A	W4898	
W4897	P4972	Heater cooler	J4208A	Vertical only	

*Expendable Cable.

CHAPTER 3
MISSILE FIRING OPERATIONS

Index of Operations

Table	Test station					Firing area			
	Communication console	Propulsion and electrical console	Stabilizer and steering console	Range console	Lateral and program console	Firing section	Servicing section		Survey section
							Electric and pneumatic	Handling and fueling	
I						Detonator Test	Warhead, Aft, Thrust Unit Trailer Preparations	Launcher Emplacement	
						Electrical Preparations	Moisture Test	Assembly of Erection Equipment	
							Electrical Preparations	Body Assembly	
						ST–80 Installation	Missile Preparations for Horizontal Checkout	Missile Assembly	
						Missile Preparations for Horizontal Checkout			
II	Activate the Communications System				Sequence Recorder Operation Check				
III	Horizontal Power Check	Horizontal Power Check	Horizontal Power Check	Horizontal Power Check	Horizontal Power Check	Horizontal Power Check	Horizontal Power Check		
IV	Inverter Calibration	Horizontal Power Plant Components Test	Warhead Continuity Check Vane Position Meter Calibration Control System Test	Range Computer Test	Sequence Recorder Operation Lateral Computer Test Program Device Test and Record	Horizontal Power Plant Components Test Vane Position Meter Calibration Control System Test Inverter Calibration	Thrust Controller Test		

Index of Operations—Continued

Table	Test station					Firing area			
	Communication console	Propulsion and electrical console	Stabilizer and steering console	Range console	Lateral and program console	Firing section	Servicing section		Survey section
							Electric and pneumatic	Handling and fueling	
V			Guidance Flight Phase and Warhead Arming Test	Guidance Flight Phase and Warhead Arming Test	Guidance Flight Phase and Warhead Arming Test	Guidance Flight Phase and Warhead Arming Test			
VI	Overall Cutoff Tests	Overall Cutoff Tests	Overall Cutoff Tests	Overall Cutoff Tests	Overall Cutoff Tests	Overall Cutoff Tests	Overall Cutoff Tests		
VII	Horizontal Simulated Flight Test	Horizontal Simulated Flight Test	Horizontal Simulated Flight Test	Horizontal Simulated Flight Test	Horizontal Simulated Flight Test	Horizontal Simulated Flight Test	Horizontal Simulated Flight Test		
VIII						Preparation for Power Transfer Test	Installation of Batteries		
IX	Power Transfer Test	Power Transfer Test	Power Transfer Test	Power Transfer Test	Power Transfer Test		Power Transfer Test		
X						Preparations for Erection Heater Cooler Drop Tank Installation	Preparations for Erection Instrument Compartment Leak Test	Preparations for Erection	
XI								Erection	
XII						Electrical Preparations for Vertical Checkout	Pneumatic and Electrical Preparations for Vertical Checkout	H–Frame Erection Propellant Loading Preparations Accessory Equipment Installation	Preliminary Laying
XIII	Vertical Power Check	Vertical Power Check Load Inert Lead Start	Vertical Power Check Warhead Continuity Check and Monitoring	Vertical Power Check Preset Timer Check	Vertical Power Check Preset Timer Check	Vertical Power Check Load Inert Lead Start	Vertical Power Check	Load Inert Lead Start LN_2 Cooling	

Index of Operations—Continued

Table	Test station					Firing area			
	Communication console	Propulsion and electrical console	Stabilizer and steering console	Range console	Lateral and program console	Firing section	Servicing section		Survey section
							Electric and pneumatic	Handling and fueling	
XIV		Alcohol Loading LOX Replenishing H_2O_2 Loading	Vertical Control System Test and Stabilizer Presettings	Vertical Range Computer Test	Vertical Lateral Computer Test	LOX Loading H_2O_2 Loading	Alcohol Loading LOX Replenishing	Alcohol Loading LOX Loading LOX Replenishing H_2O_2 Loading	
XV			Precise Missile Leveling					Precise Missile Leveling	Final Laying
XVI		Range Computer Presetting		Range Computer Presetting	Range Computer Presetting				
XVII	Preparation for Firing and Firing Operations	Preparation for Firing and Firing Operations	Preparation for Firing and Firing Operations	Preparation for Firing and Firing Operations	Preparation for Firing and Firing Operations	Preparation for Firing and Firing Operations	Preparation for Firing and Firing Operations	Preparation for Firing and Firing Operations	
XVIII						Post Firing Operations	Post Firing Operations	Post Firing Operations	
XIX	Retest for Abort Firing	Retest for Abort Firing	Retest for Abort Firing	Retest for Abort Firing	Retest for Abort Firing	Retest for Abort Firing	Retest for Abort Firing		
XX								Hydrogen Peroxide Draining Liquid Oxygen Draining Alcohol Draining Inert Lead Draining	
XXI		H_2O_2 Flushing Lithium Chloride Flushing				H_2O_2 Flushing Lithium Chloride Flushing		H_2O_2 Flushing Lithium Chloride Flushing	
XXII						Missile Disassembly	Missile Disassembly	Missile Disassembly	

Table I

Firing area		
Firing section	Servicing section	
	Electrical and pneumatic	Handling and fueling

AS SOON AS THE FIRING POSITION HAS BEEN SELECTED, THE MISSILE LAYING TEAM SHOULD VERIFY THAT ALL SURVEY REQUIREMENTS WILL BE COMPLETE AND THAT THE REQUIRED EQUIPMENT FOR LAYING IS OPERATIVE. FOR DETAILS ON MISSILE LAYING REQUIREMENTS AND PROCEDURES, REFER TO FM 6–35.

THE FIRST TWO ITEMS IN THIS PORTION OF THIS TABLE ARE PERFORMED CONCURRENT WITH OTHER OPERATIONS. THE LAST TWO ITEMS CANNOT BE COMPLETED UNTIL THE MISSILE HAS BEEN ASSEMBLED AND ATTACHED TO THE LAUNCHER. TABLE II MAY BE STARTED AS SOON AS AC VOLTAGE IS AVAILABLE TO THE TEST STATION.

DETONATOR TEST

The three explosive items to be tested in accordance with this section are—

1. Explosive screws—6 each.
2. Igniter Squib Assembly, Rocket Engine, T108E—1 each.
3. Link Assembly Separation, Double Squib—1 each.

THE IGNITER SQUIB ASSEMBLY IS NOT TO BE UNPACKED UNTIL JUST BEFORE TESTING. IF UNPACKED, THIS ITEM MUST BE USED WITHIN 24 HOURS OR BE REPLACED. TESTING ON EACH ITEM IS TO BE PERFORMED JUST BEFORE INSTALLATION IN THE MISSILE. USE EXTREME CAUTION WHEN HANDLING ANY OF THE ABOVE EXPLOSIVE ITEMS. SMOKING IS PROHIBITED DURING OPERATIONS INVOLVING EXPLOSIVES. DUE TO THE HIGH EXPLOSIVE AND READILY INFLAMMABLE PROPERTIES, SERIOUS INJURY CAN RESULT FROM IMPROPER HANDLING. DO NOT SUBJECT ITEMS TO SHOCK, ROUGH HANDLING, EXPOSURE TO OPEN FLAME OR INTENSE HEAT. ALWAYS FOLLOW THE SEQUENCED STEPS OF THE PROCEDURE FOR SAFETY AND ACCURACY OF TEST RESULTS. INSURE THAT PERSONNEL INVOLVED IN THESE TESTS ARE PROTECTED FROM EXPLOSIVES BY THE USE OF SANDBAGS OR OTHER SUITABLE BARRICADE.

1. Operation and calibration of Alinco Tester, Model 101–5A.

TESTER MUST BE PLACED ON A FIRM, RELATIVELY LEVEL SURFACE TO ASSURE ACCURATE READINGS.

THE FIRST THREE ITEMS IN THIS PORTION OF THIS TABLE ARE PERFORMED CONCURRENT WITH OTHER OPERATIONS. THE LAST ITEM CANNOT BE COMPLETED UNTIL THE MISSILE HAS BEEN ASSEMBLED. TABLE II MAY BE STARTED AS SOON AS AC VOLTAGE IS AVAILABLE TO THE BATTERY SERVICING SHOP.

WARHEAD, AFT, THRUST UNIT TRAILER PREPARATIONS

WHEN REMOVING TRAILER COVERS, CARE SHOULD BE TAKEN AS JACKS MAY SLIP WHEN TRAILER COVERS ARE ELEVATED, CAUSING THE CRANK HANDLES TO SPIN VIOLENTLY.

FOR DETAILED INSTRUCTIONS ON EACH TRAILER, REFER TO TM 9–1410–350–14/1, BALLISTIC GUIDED MISSILE, XM8, SHIPMENT, HANDLING, AND STORAGE.

1. Warhead section trailer.
   a. Disconnect running lights cable.
   b. Remove trailer cover.
   c. Remove the preservation material and cover from the warhead unit.
   d. Remove explosive items.

2. Aft Unit trailer.
   a. Disconnect running lights cable.
   b. Remove trailer cover.
   c. Remove the preservation material and covers from the aft unit.
   d. Obtain male portion of mono coupling and install in Aft unit.
   e. Loosen mono coupling fixture retaining nut and retract the mono coupling until the male half is clear of the mating bulkhead.
   f. Remove plastic dust cover just prior to body assembly.

3. Thrust Unit trailer.
   a. Disconnect running lights cable.

THE ITEMS IN THIS PORTION OF THIS TABLE ARE PERFORMED CONCURRENT WITH OTHER FIRING AREA ACTIVITIES.

LAUNCHER EMPLACEMENT

THE WRECKER MAY BE USED AS ALTERNATE METHOD FOR LAUNCHER EMPLACEMENT. IF THE WRECKER IS USED THE ARRESTING CYLINDERS ON THE HYDRAULIC CART SHOULD BE TESTED UNDER LOAD PRIOR TO ERECTION.

1. Position launcher over predetermined firing point.
2. Start the 60 KW generator.
3. Unload the hydraulic cart.

CART OPERATION MAY BE PERFORMED MANUALLY IF DESIRED. FOR DETAILED OPERATION ON HYDRAULIC CART, REFER TO TM 9–1430–350–14/1, LAUNCHER AND ERECTOR VEHICLE.

4. Remove Arresting Cylinder from cart and place it, with slide-in pad, under lift hook next to tow bar, insuring that the launcher and arresting cylinder will clear each other when launcher is lowered.
5. Make electrical connection between generator and cart.
6. Uncoil and connect hoses from the arresting cylinder to the hydraulic cart and close the valve on the cart.
7. Brake launcher wheels, chock if necessary.
8. Raise the arresting cylinder fork and engage with launcher lift hook.
9. Press latch to release jaw of pintle hook on truck, raise launcher with arresting cylinder to lift weight of tow bar off hook and then move truck forward.
10. Lower launcher to ground by operating control valve on cart.
11. Remove arresting cylinder and return to cart.
12. Remove the other arresting cylinder from cart and place it with slide in base pad under lift point on rear of launcher, insuring that the launcher and arresting cylinder will clear each other when launcher is lowered.

Table I—Continued

Firing area		
Firing section	Servicing section	
	Electrical and pneumatic	Handling and fueling
DETONATOR TEST—Continued a. Unclamp galvanometer pointer by sliding button on galvanometer case to unlocked position. b. Adjust galvanometer pointer by turning galvanometer knob until null reading is obtained on galvanometer scale. c. Using veeder-root counter knob, set digital dial to Zero. d. Set Ohms Add Selector switch on Zero position. e. Connect Banana plugs of test lead into post receptacle marked Igniter Circuit. f. Connect the two Alligator clips of the test leads together. g. Depress KEY circuit breaker and turn the veeder-root counter knob to obtain a null reading on scale. Read and record resistance directly from counter dial. h. Connect a 5 ohm resistor with a 1% tolerance between the two Alligator clips. i. Depress KEY circuit breaker and turn the veeder-root counter knob to obtain a null reading on scale. Read and record resistance directly from counter dial. j. Subtract recorded value in step g from step i. Resulting difference must be 5±0.1 ohm. k. If requirement in j is satisfied, remove the resistor and proceed to step 2. If not, tester must be requalified. 2. Explosive Screws Test. a. Place explosive screw in barricade and remove shorting plug from male connector or explosive screw leads. b. Connect male connector of explosive screw leads through opening provided in barricade to female connector marked Explosive Bolt in Alinco Tester. c. Rotate selector switch until arrow alines with position marked Explosive Bolt 1–2. d. Depress KEY circuit breaker on Alinco Tester and turn veeder-root counterknob to obtain Null reading on galvanometer scale. Read resistance directly from veeder-root counter-dial. Resistance must be between 6 and 12 ohms. If not, explosive bolt is unserviceable. IF READING IS OVER 10 OHMS, SET OHMS ADD SELECTOR SWITCH ON 10. e. Rotate selector switch of tester until arrow aligns with position marked Explosive Bolts 3–4. f. Repeat step d. g. Disconnect explosive screw from tester and replace shorting plug from male connector of explosive screw leads. REPEAT STEPS a THROUGH g FOR EACH EXPLOSIVE SCREW.	WARHEAD, AFT, THRUST UNIT TRAILER PREPARATIONS—Continued b. Remove trailer cover. c. Remove the preservation materials and covers from the Thrust Unit. d. Remove Body and Thrust Unit interconnecting plugs from brackets and push rearward to prevent damage during mating. e. Remove male portion of mono coupling from Thrust Unit and give to person responsible for installation in Aft Unit. f. Remove plug from center of AIC bulkhead and install O-ring and washer assembly on temperature probe. g. Install AIC temperature probe and torque to 300 inch pounds. h. Connect P–4819 to J–4819 on AIC temperature probe. i. Insure that all breathers are removed, air vent cap plugs are installed and torqued to the proper value. Refer to TM–9–1410–350–14/1, Ballistic Guided Missile XM8, Shipment, Handling, and Storage. j. Remove all accessory items stored on Thrust Unit trailer prior to vehicle departing the firing position after missile assembly. Place accessory items in a convenient position. END OF TRAILER PREPARATIONS MOISTURE TEST 1. Energize Air Compressor. FOR DETAILED OPERATION INSTRUCTIONS, REFER TO TM 5–4310–205–10. 2. Connect the input receptacle of the mositure monitor to the 3,000 psi discharge line of the air compressor. MOISTURE MONITOR OUTLETS MUST BE CAPPED OR TAPED WHENEVER DISCONNECTED. 3. Perform the Moisture Test. a. Plug moisture monitor power cable into 115 volts 60 cps outlet. b. Turn pressure adjust knob counterclockwise until knob turns freely. c. Manually set red needle on moisture gage to 20. d. Manually set white needle on moisture gage to zero.	LAUNCHER EMPLACEMENT—Continued 13. Attach lift hook to lifting cylinder fork. 14. Raise launcher with arresting cylinder, to lift weight from wheels. 15. Release wheels and lower launcher to ground by operating control valve on cart. 16. Remove generator and hydraulic cart from the immediate vicinity of the launcher to prevent interference with assembly of erection equipment. 17. Remove wheels and return hanger lock assemblies to their normal position, securing them with the outrigger pins. 18. Level the launcher. a. Lower all pads to ground. b. Rotate each coarse speed adjusting lug twelve turns clockwise. NUMBER OF TURNS MAY VARY ACCORDING TO TERRAIN CONDITIONS. c. If bubble at one leg of the launcher indicates the launcher is not level, adjust the adjacent pair of legs until bubble is centered. BOTH LEGS ARE ADJUSTED THE SAME AMOUNT BUT IN OPPOSITE DIRECTIONS. DIRECTION OF BUBBLE FROM CENTER LINE INDICATES HIGH SIDE. d. Repeat c above until both bubbles are centered. 19. Remove tow bar and running light harness. 20. Install outrigger in tow bar bracket. 21. Lower all outrigger pads to stabilize the launcher. 22. Remove all turnbuckles, and roller shims. END OF LAUNCHER EMPLACEMENT ASSEMBLY OF ERECTION EQUIPMENT THIS ASSEMBLY OPERATION CONSISTS OF ASSEMBLY OF TWO ITEMS: A-FRAME ASSEMBLY AND H-FRAME ASSEMBLY. WHENEVER POSSIBLE, THE NEXT TWO OPERATIONS SHOULD BE PERFORMED CONCURRENTLY.

Table I—Continued

Firing area		
Firing section	Servicing section	
	Electrical and pneumatic	Handling and fueling
DETONATOR TEST—Continued	MOISTURE TEST—Continued	ASSEMBLY OF ERECTION EQUIPMENT—Con.
3. Igniter Squib Test. a. Place igniter squib in barricade and remove shorting pin. b. Connect female connector of igniter squib through opening provided in barricade to male connector labeled igniter in Alinco Tester. c. Rotate selector switch until arrow aligns with position marked Igniter B–C. d. Depress KEY circuit breaker on Tester and turn veeder-root counterknob to obtain Null reading on galvanometer scale. Read resistance directly from veeder-root counterdial. With ohms add selector switch in the zero position, resistance must be between 0.30 to 1.00 ohms. If not, the igniter squib is unserviceable. e. Rotate selector switch until arrow aligns with position marked Link A–B. f. Depress KEY circuit breaker on Tester and turn veeder-root counterknob to obtain null reading on galvanometer scale. Read resistance directly from veeder-root counterdial. Resistance must be between 0.10 to 0.70 ohms. If not, the igniter squib is unserviceable. g. Disconnect igniter squib from tester and replace shorting plug. 4. Link Assembly Separation, Double Squib Test. a. Place Link Assembly Separation in barricade and remove shorting plug. b. Connect male connector of separation link through opening provided in barricade to female connector marked Separation Link on Alinco Tester. c. Rotate selector switch until arrow aligns with position marked separation link. d. Depress KEY circuit breaker on Alinco Tester and turn veeder-root counterknob to obtain null reading on galvanometer scale. Read resistance directly from veeder-root counterdial. Resistance must be between 0.37 and 0.63 ohms. If not, the separation link assembly is unserviceable. e. Disconnect male connector from Alinco Tester and replace shorting plug on Link Assembly Separation. f. Remove Link Assembly Separation from barricade.	e. Set range switch on rear of monitor to X50. f. Turn on air supply from source to be tested and regulate output to 1,000 psi. g. Turn power switch on at moisture monitor. h. Turn pressure adjust knob clockwise until pressure gage reads 4 psi. i. Open low pressure bypass valve about three turns and check for a small amount of air escaping from low pressure bypass outlet. j. Open hi-pressure bypass valve ⅛ turn. k. If alarm lamp comes on, press alarm reset button intermittently until alarm lamp remains off; then partially close hi-pressure bypass valve until only a small amount of air escapes. l. Turn pressure adjust knob clockwise until gage indicates 30 psi. m. When white needle on moisture gage drops below 4, indicating a moisture content below 200 ppm (4 x 50) move range switch to X5. IF MOISTURE CONTENT IS MORE THAN 100 ppm WHEN SWITCH IS MOVED TO X5, THE ALARM LAMP WILL COME ON. IF THIS OCCURS, PRESS ALARM RESET BUTTON INTERMITTENTLY UNTIL ALARM LAMP REMAINS OFF. n. If white needle stabilizes but does not drop below 4, multiply indication by X5. If needle drops below 4, move switch to X1. When needle stabilized note gage indication, the value shown is the moisture content in parts per million. o. Check sintered nozzel filter for contamination. (1) Open low pressure bypass valve all the way. (2) Observe parts per million meter. If the meter remains steady, or varies slightly and recovers, immediately reset low pressure bypass valve and continue to step 4. If the meter drops to a low value and remains low, replace the filter; reset low pressure bypass valve; verify flow rate; and then proceed to step 4. 4. Determine moisture content of air. a. When indicator on Moisture Monitor indicates 23.3 ppm or less, the air is usable; 23.3 ppm is equivalent to −65° F.	A-FRAME ASSEMBLY 1. Remove A-frame sections from truck. 2. Secure 2 lower sections to launcher and position them to lay on the Rotating Frame Assembly. 3. Attach and secure 2 center sections to the lower sections. 4. Attach and secure top section to center sections. 5. Attach 2 chain hoists to support cables. 6. Attach missile erecting sling to equalizing wire rope. 7. Attach 3 part block to A-frame with yoke. H-FRAME ASSEMBLY 1. Remove H-frame sections, spreaders, and support jacks from truck and place in the relative manner of use. SECTIONS AND SPREADERS ARE INSTALLED FROM LAUNCHER TO TRUCK. INSURE THAT THE SECOND SECTIONS ARE INSTALLED WITH PLATFORM HINGES DOWN. 2. Attach the spreader structure with the personnel pulley to the first sections. 3. Connect and secure the first sections to launcher attaching points. INSTALL SUPPORT JACKS AT THE END OF THE SECTIONS AS THEY ARE ASSEMBLED. 4. Connect and secure the remaining sections and spreaders. 5. Attach tension wires to lugs on first and last sections. 6. Raise and secure tension wire supports on the second sections. 7. Secure tension wires to supports. 8. Connect and secure the last sections to the rear of the truck as it is backed into position. 9. Place two support jacks under rear of truck. 10. Attach and adjust end section cables on the last section. 11. Attach and secure the stationary block to the anchor cable on the truck bed. 12. Disengage the winch free-spooling frame located on winch frame and pull out erection cable.
END OF DETONATOR TEST		

Table I—Continued

Firing area

Firing section

ELECTRICAL PREPARATIONS

THE FOLLOWING LIST OF CABLES ARE NORMALLY LAYED OUT AND CONNECTED BY THE FIRING SECTION TO EXPEDITE CABLING, IN THE EVENT THAT THE HARDWARE IS NOT EMPLACED TO WHICH THE CABLES ARE TO BE CONNECTED, CABLES ARE TO BE LAYED IN THE VICINITY OF THEIR TERMINAL POINT AND CONNECTED AT A LATER TIME.

HORIZONTAL CABLING DIAGRAM (FIG. 1) MAY BE USED AS A GUIDE IN CABLING.

Cable No.	*From—*	*To—*
W–3556	TS J–1021	RB J–3204
W–3554	TS J–1022	RB J–3205
W–3551	TS J–1023	Missile J–4103 D
W–3805	TS J–1024	(W–51437)
W–3802	TS J–1025	Missile J–6701 C
W–3555	TS J–1026	RB J–3206
W–51434	RB J–3201	Missile J–4101 D
W–51435	RB J–3202	Missile J–4102 D
W–3817	RB J–3209	W–3818
W–3818	W–3817	W–3819
W–3819	W–3818	RF J–3301
W–51433	RB J–3210	VB J–3401
W–3591	Generator Set J–35403	PDS J–50603
W–3823	Generator Set J–2	W–3824
W–3824	W–3823	AC Distribution Box 100A Outlet
W–3834	AC Distribution Box 60 Amp Outlet	TS J–4
W–3558	PDS J–50601	RB J–3207
W–3560	PDS J–50602	W–3559
W–3559	W–3560	W–3897
W–3897	W–3559	Missile J–4201 D
W–51439	PDS J–50661	W–51440
W–51440	W–51439	LN_2 J–51552
W–3597	LN_2 J–51551	Missile Drop Tank J–4976
W–3896	PDS J–50604	W–3595
W–3595	W–3896	Air Servicer J–3605
W–51411	PDS J–50605	HB J–51501
W–51412	PDS J–50617	HB J–51502
W–51436	HB J–51504	Missile J–4652
W–51424	HB J–51503	W–51423

Servicing section

Electrical and pneumatic

MOISTURE TEST—Continued

b. If required reading cannot be obtained within 15 minutes, purge air source and repeat test.

5. Vent 5,000 psi line and disconnect moisture monitor after acceptable dewpoint is obtained and connect 5,000 psi supply line from air compressor to air servicer.

ANCHOR ALL PNEUMATIC LINES AS REQUIRED

6. Purge and pressurize the Air Servicer.
7. Connect Moisture Monitor to 3,000 psi outlet on Air Servicer and repeat Moisture Test (steps 3 and 4).
8. Vent and Disconnect Moisture Monitor.
9. Lay and Connect 3,000 psi line between Air Servicer and Launcher position.
10. Connect Moisture Monitor to 3,000 psi line and repeat Moisture Test (steps 3 and 4).
11. Vent and Disconnect Moisture Monitor from 3,000 psi line.

CONNECT 3,000 PSI LINE TO THE VALVE BOX AS SOON AS POSSIBLE AFTER COMPLETING TEST.

12. Continuously Monitor Air Supply.

a. Connect Moisture Monitor to Low Pressure outlet on Air Compressor.

b. Set Regulated output to 1,000 psi.

c. Set red needle to 4.7 with range switch set to X5 position.

IF MOISTURE OF THE AIR EXCEEDS THE VALUE SET ON MONITOR, THE ALARM LAMP WILL LIGHT AND REMAIN ON.

END OF MOISTURE TEST

ELECTRICAL PREPARATIONS

1. Emplace grounding rod and lay ground wires to positions which will be occupied by the relay box, Test Station, 60 KW generator, and power distribution station. Connect ground wires at a later time when all of the above items are emplaced.

Handling and fueling

ASSEMBLY OF ERECTION EQUIPMENT—Con.

13. Reeve the erection cable from the winch around the large sheave on the 3-part block to the large sheave on the stationary block and back to the small spool on the 3-part block and secure.
14. Raise and secure Erector Frame on truck bed insuring that erection cable is routed between flanges.
15. Elevate the A-frame to operating position.
    a. Engage winch drum free-spooling lever.
    b. Depress vehicle clutch.
    c. Push winch control lever forward.
    d. Select transmission gear.
    e. Engage vehicle clutch, accelerating engine slightly.
    f. Disengage vehicle clutch when A-frame reaches operating position.
16. Lower erector frame to truck bed prior to missile erection.

END OF ASSEMBLY OF ERECTION EQUIPMENT

BODY ASSEMBLY

ASSEMBLY OF THE MISSILE BODY MAY BE DONE BY UTILIZING THE 5-TON WRECKER OR A-FRAME AS AN ALTERNATE METHOD.

ASSEMBLY METHOD (5-TON WRECKER)

1. Position the wrecker, as required, near the Aft Unit and Warhead Unit trailers.
2. Mount lifting beam on the crane hook.
3. Attach the single cable sling to the crane hook; attach slings to the spreader bar of the lifting beam.
4. Raise the wrecker boom to approximately a 45° angle and extend the boom over the top center of the Aft Unit; the markings on the boom should indicate an extension to about 15½ feet.
5. Attach rear double cable sling assemblies to the rear lifting bolts on each side of the Aft Unit; attach a single cable to the top front lifting bolt of the Aft Unit.
6. Lift the Aft Unit as required.
7. Position the front of the suspended Aft Unit behind the warhead unit.
8. Open the mating bolt access doors on the Aft Unit
9. Aline the mating ends of the warhead and Aft Units.

Table I—Continued

Firing area		
Firing section	Servicing section	
	Electrical and pneumatic	Handling and fueling
ELECTRICAL PREPARATIONS—Continued	ELECTRICAL PREPARATIONS—Continued	ASSEMBLY METHOD (5-TON WRECKER)—Con.
Cable No. *From—* *To—* W–51423 W–51424 W–3598 W–3598 W–51423 Missile Drop Tank J–4974	2. Emplace AC distribution box in vicinity of launcher, insuring that it is close enough so that power cables from propellant vehicles and hydraulic cart can reach it when AC power is required. 3. Start 60 KW AC Generator. Operate generator according to instructions mounted on instrument panel door. Do not close circuit breaker until AC voltage is requested by Test Station.	INSURE THAT RUBBER GASKET AROUND WARHEAD UNIT FORMER RING IS NOT DAMAGED AND THAT PROPER ALINEMENT OF LIP AND SEAL IS OBTAINED. 10. Engage ball and socket connectors between the two units. 11. Insert the four ⅜ inch bolts and the four ⅝ inch bolts. 12. Torque the four ⅜ inch bolts to 175 ± 15 inch pounds. 13. After step 12 is completed, torque the four ⅝ inch bolts to 1200 ± 200 inch pounds. 14. Close the mating bolt access doors on the Aft Unit. 15. Remove lifting slings from Aft Unit and unbolt main access doors.
END OF ELECTRICAL PREPARATIONS	AT SOME TIME JUST PRIOR TO HORIZONTAL POWER TEST, THE FOLLOWING STEPS SHOULD BE PERFORMED: 4. Energize Power Distribution Station. a. Insure that all circuit breakers on the main junction panel are Off. b. Insure that both power output switches on the 28 volt power supply panel are Off. c. Depress and release Start pushbutton for network energizer. d. When network energizer has attained proper speed, depress Start pushbutton for inverter energizer. e. Adjust both voltage control reheostats to obtain 28 volt readings on the energizer voltmeters. f. Turn circuit breaker CB–4 On. DO NOT TURN THE ENERGIZER OUTPUT SWITCHES ON UNTIL REQUESTED BY THE TEST STATION. g. Insure that the voltmeter selector switch on the 60-volt panel is in the 60 volt battery position. END OF ELECTRICAL PREPARATIONS	ASSEMBLY METHOD (A-FRAME) 1. Position Aft Unit under chain hoist on A-frame and remove tiedowns. 2. Install forward lifting eye on top of Aft Unit. 3. Attach Aft Unit lifting slings to forward eye and to hoist lugs on each side of Aft Unit. 4. Attach hooks of chain hoists to Aft Unit lifting slings. INSURE THAT HOISTS ARE DIRECTLY ABOVE THE CENTER OF GRAVITY OF THE AFT UNIT. 5. Operate hoists to lift Aft Unit clear of trailer. 6. Move empty trailer away *from suspended Aft Unit.* TRAILER MAY BE PREPARED FOR TRAVEL AT A CONVENIENT TIME. 7. Position the rear of the Warhead Unit trailer in front of the suspended Aft Unit. 8. Open the mating bolt access doors on the Aft Unit. 9. By operating chain hoists and raising or lowering the A-frame as required, align the mating ends of the Warhead and Aft Units. INSURE THAT RUBBER GASKET AROUND WARHEAD UNIT FORMER RING IS NOT DAMAGED AND THAT PROPER ALIGNMENT OF LIP AND SEAL IS OBTAINED 10. Engage ball and socket connectors between the two units.
ST–80 INSTALLATION		
THE ST–80 WILL BE LEFT IN THE SHIPPING CONTAINER UNTIL IT IS NEEDED FOR INSTALLATION. STEPS 7, 8, AND 9 CAN BE PERFORMED WHILE THE ST–80 IS BEING REMOVED FROM THE SHIPPING CONTAINER. 1. Remove cover from relief valve port on the ST–80 container. 2. Slowly remove body from the relief valve. 3. Loosen bolts securing cover. 4. Using lifting rings provided, remove cover from container. INSURE THAT THE ST–80 IS HANDLED ONLY BY THE HANDLING FRAME. CARE SHOULD BE TAKEN TO PREVENT ANY DAMAGE TO THE ST–80 DUST COVER. 5. Unbolt the ST–80 pivot bolts from the container shock mount and remove the platform from the container. 6. Attach the auxiliary handling bracket to the handling frame and place the ST–80 on the ground support platform. 7. Insert the end of the I–beam with pin into receptacle on the instrument compartment panel. 8. Lift beam into fastener on top of door frame and insert retaining pin. 9. Position the hoist on the monorail to pick up the ST–80 and lower lifting device. USE SPEED WRENCH AND ½ INCH SQUARE DRIVE UNIVERSAL. 10. Attach ST–80 auxiliary handling bracket to lifting clevis and raise to monorail. 11. Remove the two white breather plugs on vents of ST–80 case. 12. Remove tape from ST–80 dust cover. 13. Roll trolley with attached ST–80 into missile over the platform mount.	MISSILE PREPARATION FOR HORIZONTAL CHECKOUT. 1. Place in position the four horizontal checkout platforms and two missile ladders. 2. Install valve box in bracket on rotating frame assembly and couple to missile. 3. Connect pressurizing line to Igniter A1C container and valve box.	

Table I—Continued

Firing area		
Firing section	Servicing section	
	Electrical and pneumatic	Handling and fueling
ST–80 INSTALLATION—Continued 14. Lower the ST–80 into position, insuring that mounting bracket is in contact with alinement stops. 15. Insert and tighten the mounting bolts. 16. Remove the handling frame bolts, handling frame, and auxiliary handling bracket from the guidance compartment. 17. Move the hoist out of the missile to the end of the monorail. 18. Remove the hoist and I-beam in reverse to its installation and store. 19. Connect flexible air line from air bearing regulator to ST–80 supply. 20. Insure that pitch pendulum air supply line is connected to manifold. 21. Electrically connect the ST–80 to the missile. PLUG NUMBERS 5401, 5402, 5403, 5404, and 5406. THE ST–80 IS NOW READY FOR CHECKOUT INSIDE THE MISSILE. IF IT IS NECESSARY TO REPLACE THE ST–80 IN THE SHIPPING CONTAINER, INSURE THAT IT IS PROPERLY MOUNTED. REFER TO TM 9–1410–350–34/1. END OF ST–80 INSTALLATION MISSILE PREPARATION FOR HORIZONTAL CHECKOUT 1. Install relay box on mounting stand. INSURE THAT BLIND PLUG P–3214 (RANGE SAFE) IS INSTALLED ON RELAY BOX. 2. Electrically connect Warhead Unit to Aft unit. a. Connect P–7201 A to J–7201 (payload). b. Connect P–7001 A to J–7001 (DOFL). 3. Electrically connect Thrust unit and Missile Body. a. Connect P–4101 B to J–4101 B. b. Connect P–4101 E to J–4101E. c. Connect P–4102 B to J–4102 B. d. Connect P–4103 B to J–4103 B. e. Connect P–4104 B to J–4104 B. f. Connect P–4201 B to J–4201 B. g. Connect P–4356 A to J–4356 A. h. Connect P–6701 B to J–6701 B. i. Connect P–4115 B to J–4115 B.	MISSILE PREPARATION FOR HORIZONTAL CHECKOUT—Continued 4. Connect flow line to A1C container and Valve box. 5. Install auxiliary pressure container on valve box bracket and connect air line to valve box and container. 6. Install LOX Replenishing arm in bracket on rotating frame assembly and couple to missile. 7. Connect LOX Replenishing Vent Control line to LOX Replenishing Arm and Valve Box. 8. Insure LOX Sensing port on Valve Box is capped. 9. Position and sandbag the LOX replenishing supply valve in the vicinity of the Air servicer. 10. Connect Air Line between LOX Replenishing Supply Valve and 750 psi outlet on the Air Servicer. 11. Emplace Relay Box mounting stand approximately 10 feet from launcher and in line with a support leg and the center of the launcher. 12. Emplace Heater Control Box in the vicinity of the Relay Box mounting stand. 13. Install 1,000 psi gage for engine pneumatic pressure regulator and prepare gage for regulator monitoring. 14. Install 600 psi gage for Jet Nozzle Regulator and prepare gage for regulator monitoring. 15. Install 60 psi gage for Air Bearing Regulator on manifold downstream of last stage regulator, and prepare gage for regulator monitoring. 16. Mate Mono coupling. 17. Remove from the following items the sealing tape or cover: a. A1C Vent Valve. b. LOX Vent Valve. c. H_2O_2 Vent and Overflow Outlet. d. Steam Drain Seal. e. LOX Drain Seal. 18. Remove moisture barrier and desiccant from the Thrust chamber and steam exhaust. OBTAIN APPROVAL FROM THE OFFICER IN CHARGE BEFORE CONTINUING THIS TABLE. 19. Insure that 5,000 psi regulator at the Air Compressor is set at 5,000 psi. 20. Insure that all valves are closed at the Valve Box.	ASSEMBLY METHOD (A-FRAME)—Continued 11. Insert the four ⅜ inch bolts and the four 9/16 inch bolts. 12. Torque the four ⅜ inch bolts to 175 ± 15 inch pounds. 13. After step 12 is completed, torque the four 9/16 inch bolts to 1200 ± 200 inch pounds. 14. Close the mating bolt access doors on the Aft Unit. 15. Remove lifting slings from Aft Unit and unbolt main access doors. 16. Move the missile body forward to permit positioning of Thrust unit. END OF BODY ASSEMBLY MISSILE ASSEMBLY 1. Back Thrust unit to launcher. 2. Lift Rotating Frame Assembly from Launcher. a. Attach slings from chain hoists hooks to lift rings on rotating frame assembly. b. Attach strap around elevator support bar on the H-frame and the rotating frame assembly. c. Remove open eye pivots supports on launcher. d. With hoists, lift rotating frame assembly in the horizontal position until brackets are clear of launcher. e. Slowly release tension on the strap until the rotating frame assembly swings horizontally. f. Tilt rotating frame assembly to the vertical position. Insure attaching collars are free. 3. Connect the rotating frame assembly to the base of the Thrust Unit at the four connecting points. 4. Using spanner wrench, tighten attaching collars, securing rotating frame assembly to Thrust Unit. 5. Detach slings and strap from the rotating frame assembly. 6. Remove Thrust Unit tiedowns and attach Thrust Unit slings to the four hoist lugs on the Thrust Unit. WHEN THRUST UNIT IS LIFTED CLEAR OF TRAILER, FORCE MUST BE EXERTED DOWNWARDS ON THE FRONT END OF THE THRUST UNIT TO HOLD IT HORIZONTAL. SUFFICIENT PERSONNEL SHOULD BE STATIONED AT THE FRONT OF THE THRUST UNIT FOR THIS OPERATION. ALL PERSONNEL MUST STAY CLEAR OF THE AREA BETWEEN THE LAUNCHER AND THE THRUST UNIT.

Table I—Continued

Firing area	Servicing section	
Firing section	Electrical and pneumatic	Handling and fueling
MISSILE PREPARATION FOR HORIZONTAL CHECKOUT—Continued	MISSILE PREPARATION FOR HORIZONTAL CHECKOUT—Continued	MISSILE ASSEMBLY—Continued
j. Connect P–8606 B to J–8606 B. k. Connect P–8614 B to J–8614 B. TIGHTEN JAM NUTS AFTER CONNECTIONS ARE MADE. 4. Connect communication boxes. a. Connect P–4109 A to J–4109 A (near control distributor) and connect P–4 to J–4 on communication box. b. Connect P–4109 B to J–4109 B (near servo loop amplifier) and connect P–4 to J–4 on communication box (if needed). c. Connect P–3002 to J–3002 on Test Station, and P–4 to J–4 on communication box. 5. Connect a headset at the following places: a. Relay box. b. Communication boxes. c. Remote firing panel. d. Power Distribution Station. e. Air Servicer. f. Battery servicing shop. g. LN_2 Control box. 6. Connect flight simulator test box to missile. Connect P–3701 to J–3701 on test box, and connect P–4117 to J–4117 on the control distributor. 7. Connect servo interrupt box to missile. a. Disconnect P–6403 on Control Relay box and connect it to J–3731 on servo interrupt box. b. Connect cable W–3574 to J–3732 of servo interrupt box and J–6403 of Control Relay box. c. Connect cable W–3567 to J–3733 of servo interrupt box and to J–3702 of flight test simulator box. 8. Connect amplifier load box. a. Disconnect P–5602 and P–5603 from the servo loop amplifier. b. Disconnect P–5502 from the alinement amplifier. c. Disconnect P–6302 from the control computer. d. Respectively connect P–5602 and P–5603 of the amplifier load box to J–5602 and J–5603 on the servo loop amplifier. e. Connect P–5502 of the amplifier load box to J–5502 on the alinement amplifier. f. Connect P–6302 of the amplifier load box to J–6302 on the control computer.	21. At the Air Servicer, set the 3,000 psi regulator at 1,800 psi and the 750 psi regulator at 750 psi. LISTEN FOR AIR LEAKS. 22. At the Air Servicer, SLOWLY open the High Pressure Bypass valve. 23. Turn 750 psi and 3,000 psi solenoid switches On at the Air Servicer. 24. Open Regulator-Inlet valve at Valve Box. a. Regulator gage indicates 750 psi, adjust regulator if necessary. b. Missile LOX Vent Valve opens. 25. Open Sphere By-pass Valve at Valve Box. a. Missile spheres pressurize. b. Supply pressure gage stabilizes at 1,800 psi. 26. Open Purge and Igniter Valve on Valve Box. Igniter ALC bottle pressurizes. 27. Set engine pneumatic pressure regulator located inside access door between Fins I and II. a. Depress and turn clockwise the knurled knob until bleed lock engages. b. Turn handle clockwise until specified value is read on 1,000 psi gage. SPECIFIED VALUE IS STAMPED ON REGULATOR PANEL. c. Turn knurled knob counterclockwise. 28. Insure that Jet Nozzle regulator output is 300 ± 5 psi. Adjust if necessary. 29. Insure that air bearing regulator output is between 1.5 psi below and 3.5 psi above the value marked on the mounting bracket of the ST–80. Adjust if necessary. IF BRACKET IS NOT MARKED, REGULATOR OUTPUT SHOULD BE BETWEEN 31 to 36 psi. END OF MISSILE PREPARATION FOR HORIZONTAL CHECKOUT END OF TABLE I	7. Operate chain hoists to lift Thrust Unit clear of trailer. 8. Move empty trailer away from suspended Thrust Unit. INSURE THAT ALL ACCESSORY ITEMS HAVE BEEN REMOVED FROM TRAILER. TRAILER MAY BE PREPARED FOR TRAVEL AT A CONVENIENT TIME. 9. Maneuver the rear of the missile body into alinement with the forward end of the suspended Thrust Unit. 10. Open explosive bolt access doors on forward end of Thrust Unit. 11. Engage ball and socket connectors between the two units. 12. Open small access door on Aft Unit. DO NOT ELECTRICALLY CONNECT EXPLOSIVE BOLTS UNTIL REQUIRED IN TABLE VIII. 13. Install explosive bolts and torque to 440 ± 10 inch pounds. 14. Firmly tighten retaining screws against each explosive bolt flange. ALL THRUST UNIT MATING BOLTS MUST BE RETORQUED TO THE PRESCRIBED VALUE PRIOR TO EACH ERECTION. LOOSEN RETAINING SCREWS PRIOR TO RETORQUING THEN RETIGHTEN AFTER RETORQUING. 15. Remove warhead unit hold down band and U-bolt brackets at lifting bolt receivers. 16. Replace open eye pivots on launcher. INSURE THAT ERECTOR TRUCK IS OUT OF GEAR AND THAT BRAKES ARE RELEASED TO PREVENT DAMAGE TO THE H-FRAME. 17. Back the missile into the launcher pivot points using the A-frame and chain hoists movements to attain the proper alinement. 18. Install launcher pivot pins. 19. Detach Thrust Unit sling from chain hoists.

Table I—Continued

Firing area		
Firing section	Servicing section	
	Electrical and pneumatic	Handling and fueling
MISSILE PREPARATION FOR HORIZONTAL CHECKOUT—Continued		MISSILE ASSEMBLY—Continued
9. Emplacement of drop tank.		20. Secure chain hoist to A-frame insuring that equalizer pulley is free of chain hoist support cables.
LIFT DROP TANK BY STRUCTURAL MEMBER ONLY.		21. Attach erecting cables extending from the equalizing pulley cable on the A-frame to the hoist bolts on hoist point number 1 on the missile.
a. Remove drop tank and boom from carrying vehicles and place on ground in the vicinity of the missile Aft unit.		END OF MISSILE ASSEMBLY
b. Remove moisture barrier material from drop tank vent tubes and missile receptacles.		THE FOLLOWING IS A LIST OF ITEMS THAT MAY BE PREPARED (OR INSTALLED) ANY TIME THE MISSILE IS IN THE HORIZONTAL POSITION. REFER TO APPROPRIATE TABLE FOR INSTRUCTIONS.
c. Connect boom assembly to drop tank.		1. LOX Leveling Device (Table X).
d. Connect rigid tubing and flexible ducts between drop tank and boom assembly.		2. LOX Vent Conduit (Table XII).
e. Insure drain petcock is fully clockwise.		3. LOX Fill and Drain Valve (Table XII).
f. Connect P–4980 to J–4980 on LN_2 fill valve.		4. LOX Replenishing Line (Table XII).
g. Connect P–4982 to J–4982 on dehumidifier temperature controller.		5. ALC Fill and Drain Valve (Table XII).
h. Connect LN_2 fill line to inlet connector on drop tank.		END OF TABLE I
i. Secure cables W–3597, W–3598 and LN_2 fill line using clamps on boom assembly.		
j. Disconnect J–4972 on the drop tank control box.		
k. Connect test jumper cable (W–51438) between W–4898 on drop tank and J–4631A on missile skin if Top Heaters are required. Heater not required if temperature is above 35° F.		
10. Connect detonator test harness.		
a. W–51437 to P–1024A from the TS.		
b. Connect P–4972 of the harness to J–4972 on the drop tank control box.		
c. Connect P–4893 of the harness to J–4893 on the drop tank.		
d. Connect P–4208A of the harness to J–4208A on the missile skin between air vanes II and III.		
e. Connect P–4841–1 of the harness to J–4841–1 on the missile.		
f. Connect P–4841–2 of the harness to J–4841–2 on the missile.		
g. Connect P–4841–3 of the harness to J–4841–3 on the missile.		
h. Connect P–4841–4 of the harness to J–4841–4 on the missile.		
i. Connect P–4841–5 of the harness to J–4841–5 on the missile.		
j. Connect P–4841–6 of the harness to J–4841–6 on the missile.		

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Table I—Continued

Firing area		
Firing section	Servicing section	
	Electrical and pneumatic	Handling and fueling
MISSILE PREPARATION FOR HORIZONTAL CHECKOUT—Continued		
INSURE THAT KNIFE CONNECTOR S–4843–1 IS DISCONNECTED FROM S–4843–2. THIS KNIFE CONNECTOR IS LOCATED INSIDE THE SKIRT SECTION BETWEEN AIR VANES III AND IV WHERE THE MISSILE BODY MATES TO THE THRUST UNIT.		
11. Insure that arresting pins are removed from air vanes.		
12. Insure that all preservation material has been removed.		
FOR LISTS OF BARRIERS AND SEALS TO BE REMOVED FROM MISSILE, REFER TO TM 9–1400–350–12.		
13. Insure range and lateral computer, program device, control computer, relay box, servo loop, and alinement amplifiers are connected electrically as required for horizontal checkout.		
14. Insure that missile batteries are electrically connected and the overflow tubing is connected at all joints.		
END OF OPERATION		
END OF TABLE I		

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